

Title 16, California Code of Regulations, Division 5

The Board for Professional Engineers and Land Surveyors proposes to amend Section 404 of Division 5 of Title 16 of the California Code of Regulations as follows:

404. Definitions.

For the purpose of the rules and regulations contained in this chapter, the following terms are defined. No definition contained herein authorizes the practice of engineering as defined in the Professional Engineers Act.

(a) "Agricultural engineering" is that branch of professional engineering which requires such education and experience as is necessary to understand and apply engineering principles to the design, construction, and use of specialized equipment, machines structures and materials relating to the agricultural industry and economy. It requires knowledge of the engineering sciences relating to physical properties and biological variables of foods and fibers; atmospheric phenomena as they are related to agricultural operations; soil dynamics as related to traction, tillage and plant-soil-water relationships; and human factors relative to safe design and use of agricultural machines. The safe and proper application and use of agricultural chemicals and their effect on the environment are also concerns of the agricultural engineers. The above definition of agricultural engineering shall not be construed to permit the practice of civil, electrical or mechanical engineering, nor professional forestry.

(b) "Board" means the Board for Professional Engineers and Land Surveyors.

(c) "Chemical engineering" is that branch of professional engineering which embraces studies or activities relating to the development and application of processes in which chemical or physical changes of materials are involved. These processes are usually resolved into a coordinated series of unit physical operations and unit chemical processes. It is concerned with the research, design, production, operational, organizational, and economic aspects of the above. The above definition of chemical engineering shall not be construed to permit the practice of civil, electrical or mechanical engineering.

(d) "Civil engineer" refers to a person who holds a valid license in the branch of civil engineering, as defined in Section 6702 of the Code.

(e) "Civil engineering" is that branch of professional engineering as defined in Section 6731 of the Code.

(f) "Code" means the Business and Professions Code.

(g) "Consulting engineer" refers to any professional engineer who holds a valid license under the provisions of the code, or a person who possesses a valid authorization issued pursuant to Section 6732.2 of the Code, or a person who holds a valid exemption from provisions of the chapter as provided for in Sections 6704 and 6732.1 of the Code.

(h) "Control system engineering" is that branch of professional engineering which requires such education and experience as is necessary to understand the science of instrumentation and automatic control of dynamic processes; and requires the ability to apply this knowledge to the planning, development, operation, and evaluation of systems of control so as to insure the safety and practical operability of such processes. The above definition of control system engineering shall not be construed to permit the practice of civil, electrical, or mechanical engineering.

(i) "Corrosion engineering" is that branch of professional engineering which requires such education and experience as is necessary to understand the environmental corrosion behavior of materials; and requires the ability to apply this knowledge by recommending procedures for control, protection and cost effectiveness, resulting from the investigation of corrosion causes or

theoretical reactions. The above definition of corrosion engineering shall not be construed to permit the practice of civil, electrical, or mechanical engineering.

(j) “Electrical engineer” refers to a person who holds a valid license in the branch of electrical engineering, as defined in Section 6702.1 of the Code.

(k) ~~“Electrical engineering” is that branch of professional engineering described in Section 6734.1 of the Code, which embraces studies or activities relating to the generation, transmission, and utilization of electrical energy, including the design of electrical, electronic and magnetic circuits and the technical control of their operation and of the design of electrical gear. It is concerned with research, organizational, and the economic aspects of the above as defined in Section 6731.5 of the Code.~~

(l) “Engineer-in-training” refers to a person who has been granted a certificate as an “engineer-in-training” in accordance with Section 6756 of the Code.

(m) “Fire protection engineering” is that branch of professional engineering which requires such education and experience as is necessary to understand the engineering problems relating to the safeguarding of life and property from fire and fire-related hazards; and requires the ability to apply this knowledge to the identification, evaluation, correction, or prevention of present or potential fire and fire related panic hazards in buildings, groups of buildings, or communities, and to recommend the arrangement and use of fire resistant building materials and fire detection and extinguishing systems, devices, and apparatus in order to protect life and property. The above definition of fire protection engineering shall not be construed to permit the practice of civil, electrical, or mechanical engineering.

(n) For the sole purpose of investigating complaints and making findings thereon under Sections 6775 and 8780 of the Code, “incompetence” as used in Sections 6775 and 8780 of the Code is defined as the lack of knowledge or ability in discharging professional obligations as a professional engineer or land surveyor.

(o) “Industrial engineering” is that branch of professional engineering which requires such education and experience as is necessary to investigate, to design, and to evaluate systems of persons, materials and facilities for the purpose of economical and efficient production, use, and distribution. It requires the application of specialized engineering knowledge of the mathematical and physical sciences, together with the principles and methods of engineering analysis and design to specify, predict, and to evaluate the results to be obtained from such systems. The above definition of industrial engineering shall not be construed to permit the practice of civil, electrical, or mechanical engineering.

~~(p)~~ (p) “Land surveying” is that practice defined in Section 8726 of the Code.

~~(q)~~ (q) “Land surveyor” refers to a person who holds a valid license as a land surveyor, as defined in Section 8701 of the Code.

~~(r)~~ (r) “Land surveyor-in-training” refers to a person who has been granted a certificate as a “land surveyor-in-training” in accordance with Section 8747 (a) of the Code.

~~(s)~~ (s) “Manufacturing engineering” is that branch of professional engineering which requires such education and experience as is necessary to understand and apply engineering procedures in manufacturing processes and methods of production of industrial commodities and products; and requires the ability to plan the practices of manufacturing, to research and develop the tools, processes, machines, and equipment, and to integrate the facilities and systems for producing quality products with optimal expenditure. The above definition of manufacturing engineering shall not be construed to permit the practice of civil, electrical, or mechanical engineering.

~~(t)~~ (t) “Mechanical engineer” refers to a person who holds a valid license in the branch of mechanical engineering, as defined in Section 6702.2 of the Code.

~~(u)~~ (u) “Mechanical engineering” is that branch of professional engineering, ~~described in Section 6734.2 of the Code, which deals with engineering problems relating to generation, transmission,~~

~~and utilization of energy in the thermal or mechanical form and also with engineering problems relating to the production of tools, machinery, and their products and to heating, ventilation, refrigeration and plumbing. It is concerned with the research, design, production, operational, organizational, and economic aspects of the above as defined in Section 6731.6 of the Code.~~

~~(u)~~ (v) “Metallurgical engineering” is that branch of professional engineering, which requires such education and experience as is necessary to seek, understand and apply the principles of the properties and behavior of metals in solving engineering problems dealing with the research, development and application of metals and alloys; and the manufacturing practices of extracting, refining and processing of metals. The above definition of metallurgical engineering shall not be construed to permit the practice of civil, electrical, or mechanical engineering.

(w) For the sole purpose of investigating complaints and making findings thereon under Sections 6775 and 8780 of the Code, “negligence” as used in Sections 6775 and 8780 of the Code is defined as the failure of a licensee, in the practice of professional engineering or land surveying, to use the care ordinarily exercised in like cases by duly licensed professional engineers and land surveyors in good standing.

~~(v)~~ (x) “Nuclear engineering” is that branch of professional engineering which requires such education and experience as is necessary to apply the principles of nuclear physics to the engineering utilization of nuclear phenomena for the benefit of mankind; it is also concerned with the protection of the public from the potential hazards of radiation and radioactive materials. Nuclear engineering is primarily concerned with interaction of radiation and nuclear particles with matter. Nuclear engineering requires the application of specialized knowledge of the mathematical and physical sciences, together with the principles and methods of engineering design and nuclear analysis to specify, predict and evaluate the behavior of systems involving nuclear reactions, and to ensure the safe, efficient operation of these systems, their nuclear products and by-products. Nuclear engineering encompasses, but is not limited to, the planning and design of the specialized equipment and process systems of nuclear reactor facilities; and the protection of the public from any hazardous radiation produced in the entire nuclear reaction process. These activities include all aspects of the manufacture, transportation and use of radioactive materials. The above definition of nuclear engineering shall not be construed to permit the practice of civil, electrical, or mechanical engineering.

~~(w)~~ (y) “Petroleum engineering” is that branch of professional engineering which embraces studies or activities relating to the exploration, exploitation, location, and recovery of natural fluid hydrocarbons. It is concerned with research, design, production, and operation of devices, and the economic aspects of the above. The above definition of petroleum engineering shall not be construed to permit the practice of civil, electrical, or mechanical engineering.

~~(x)~~ (z) “Professional engineer” refers to a person engaged in the practice of professional engineering as defined in Section 6701 of the Code.

~~(y)~~ (aa) “Professional engineering” within the meaning of this chapter comprises the following branches: agricultural engineering, chemical engineering, civil engineering, control system engineering, corrosion engineering, electrical engineering, fire protection engineering, industrial engineering, manufacturing engineering, mechanical engineering, metallurgical engineering, nuclear engineering, petroleum engineering, quality engineering, safety engineering, and traffic engineering.

~~(z)~~ (bb) “Quality engineering” is that branch of professional engineering which requires such education and experience as is necessary to understand and apply the principles of product and service quality evaluation and control in the planning, development and operation of quality control systems, and the application and analysis of testing and inspection procedures; and requires the ability to apply metrology and statistical methods to diagnose and correct improper quality control practices to assure product and service reliability and conformity to prescribed

standards. The above definition of quality engineering shall not be construed to permit the practice of civil, electrical, or mechanical engineering.

~~(aa)~~ (cc) “Safety engineering” is that branch of professional engineering which requires such education and experience as is necessary to understand the engineering principles essential to the identification, elimination and control of hazards to people and property; and requires the ability to apply this knowledge to the development, analysis, production, construction, testing, and utilization of systems, products, procedures and standards in order to eliminate or optimally control hazards. The above definition of safety engineering shall not be construed to permit the practice of civil, electrical, or mechanical engineering.

~~(bb)~~ (dd) “Soil engineer” refers to a civil engineer who holds a valid authorization to use the title “soil engineer,” as provided in Section 6736.1 of the Code.

~~(ee)~~ (ee) “Soil engineering,” as it relates to the authorization to use the title “soil engineer,” is the investigation and engineering evaluation of earth materials including soil, rock, groundwater and man-made materials and their interaction with earth retention systems, structural foundations and other civil engineering works. The practice involves application of the principles of soil mechanics and the earth sciences, and requires a knowledge of engineering laws, formulas, construction techniques and performance evaluation of civil engineering works influenced by earth materials.

The terms “geotechnical engineer” and “soils engineer” are deemed to be synonymous with the term “soil engineer.”

~~(dd)~~ (ff) “Structural engineer” refers to a civil engineer who holds a valid authorization to use the title “structural engineer,” as provided in Section 6736 of the Code.

~~(ee)~~ (gg) “Structural engineering” for the purposes of structural authority is the application of specialized civil engineering knowledge and experience to the design and analysis of buildings (or other structures) which are constructed or rehabilitated to resist forces induced by vertical and horizontal loads of a static and dynamic nature. This specialized knowledge includes familiarity with scientific and mathematical principles, experimental research data and practical construction methods and processes. The design and analysis shall include consideration of stability, deflection, stiffness and other structural phenomena that affect the behavior of the building (or other structure).

~~(ff)~~ (hh) “Traffic engineering” is that branch of professional engineering which requires such education and experience as is necessary to understand the science of measuring traffic and travel and the human factors relating to traffic generation and flow; and requires the ability to apply this knowledge to planning, operating, and evaluating streets and highways and their networks, abutting lands and interrelationships with other modes of travel, to provide safe and efficient movement of people and goods. The above definition of traffic engineering shall not be construed to permit the practice of civil, electrical, or mechanical engineering.

Authority cited: Sections 6716, 6717, ~~6736.1~~ and 8710, Business and Professions Code.
Reference: Sections 6701, 6702, 6702.1, 6702.2, 6704, 6706.3, 6710, 6730, 6731, ~~6731.5~~, 6731.6, 6732, 6732.1, 6732.2, 6732.3, 6734, 6734.1, 6734.2, 6736, 6736.1, 6756, 6763, ~~6775~~, 8701, 8726, ~~8747~~, and ~~8747~~ 8780, Business and Professions Code.